CLAIMS:

What is claimed is:

1. A power control system including:

a demodulator for demodulating a first signal having a power value, the demodulated first signal including a noise component that is perpendicular to a signal axis of the first signal;

a first circuit coupled to the demodulator for receiving the demodulated first signal, the first circuit determining a noise variance of the demodulated first signal from the perpendicular noise component;

a second circuit coupled to the demodulator and the first circuit, the second circuit providing an estimate of the power value of the first signal by eliminating the noise variance of the perpendicular noise component from the demodulated first signal; and

an estimator coupled to the first circuit and the second circuit, the estimator calculating the ratio of the power value estimate and the noise variance.

2. The system of claim 1 wherein the estimator compares the ratio to a threshold value to provide one of a power up and power down signal to a base station.

3. The system of claim 1 wherein the first signal is a BPSK modulated signal.

4. The system of claim 3 wherein the first signal is a PCB.

5. The system of claim 3 wherein the first signal is a data bit.

6. The system of claim 1 wherein the first signal is a PAM signal.

7. The system of claim 6 wherein the first signal is a PCB.

8. The system of claim 6 wherein the first signal is a data bit.

9. The system of claim 1 wherein the first circuit samples a single demodulated first signal to provide an instantaneous noise variance value.

10. The system of claim 1 wherein the first circuit samples a plurality of demodulated first signals to provide an average noise variance value.

11. The system of claim 10 wherein the plurality of demodulated first signals are PCBs within a PCG.

12. The system of claim 1 wherein the second circuit provides an instantaneous estimate of the power value of the first signal.

13. The system of claim 1 wherein the second circuit computes a power value for a plurality of first signals to provide an average power value estimate.

14. The system of claim 1 wherein the second circuit employs a histogram-based approach to determine whether the average power value estimate is above or below a predetermined threshold.

15. A power control system for making inner loop forward control power decisions and generating a corresponding power control signal for transmission to a base station, including:

a demodulator for demodulating a first signal from the base station, the first signal having a power value, the demodulated first signal including a noise component that is perpendicular to a signal axis of the first signal;

a noise variance calculation circuit coupled to the demodulator for receiving the demodulated first signal, the noise variance calculation circuit sampling the perpendicular noise component to determine a noise variance of the demodulated first signal;

a power estimation circuit coupled to the demodulator and the noise variance calculation circuit, the power estimation circuit providing an estimate of the power value of the first signal by eliminating the noise variance of the perpendicular noise component from the demodulated first signal; and

an estimator coupled to the noise variance calculation circuit and the power estimation circuit, the estimator calculating the ratio of the power value estimate and the noise variance; and

a comparator for comparing the ratio to a threshold value to provide one of a power up and power down signal to the base station.

16. The system of claim 15 wherein the first signal is a BPSK modulated signal.

17. The system of claim 16 wherein the first signal is a PCB.

18. The system of claim 16 wherein the first signal is a data bit.

19. The system of claim 15 wherein the first signal is a PAM signal.

20. The system of claim 19 wherein the first signal is a PCB.

21. The system of claim 19 wherein the first signal is a data bit.

22. The system of claim 15 wherein the noise variance calculation circuit samples a single demodulated first signal to provide an instantaneous noise variance value.

23. The system of claim 15 wherein the noise variance calculation circuit samples a plurality of demodulated first signals to provide an average noise variance value.

24. The system of claim 23 wherein the plurality of demodulated first signals are PCBs within a PCG.

25. The system of claim 15 wherein the power estimation circuit provides an instantaneous estimate of the power value of the first signal.

26. The system of claim 15 wherein the power estimation circuit computes a power value for a plurality of first signals to provide an average power value estimate.

27. The system of claim 15 wherein the power estimation circuit employs a histogram-based approach to determine whether the average power value estimate is above or below a predetermined threshold.

28. A method for making control power decisions including the steps of:

demodulating a first signal from a base station;

sampling a noise component of the demodulated first signal which is perpendicular to the fade line to determine the Nt associated with the demodulated first signal;

estimating the E_b associated with the first signal by eliminating the variance of the sampled perpendicular noise component from the square of the demodulated first signal;

computing an estimated E_b/N_t;

comparing the estimated E_b/N_t to a threshold value; and

providing one of a power up and power down signal to the base station depending upon whether E_b/N_t is greater than or less than the threshold value.

29. The method of claim 28 wherein the first signal is a BPSK modulated PCB.

30. The method of claim 28 wherein the first signal is a data bit.

31. The method of claim 28 wherein the noise component of a single demodulated first signal is sampled to provide an instantaneous estimate of the variance of the sampled noise component.

32. The method of claim 28 wherein the device samples a plurality of demodulated first signals to provide an average of a plurality of estimates of the variance of the sampled noise component.

33. The method of claim 32 wherein the plurality of demodulated first signals are PCBs within a PCG.

34. The method of claim 28 wherein E_b is estimated for a plurality of first signals to provide an average estimate of E_b.